CLAIMS

1. A clock generator (100) comprising a random-number generator (1) and a phase modulator (4) for generating a system clock (cl) which is jittered in the frequency spectrum and thus causes minimal radiated interference, characterized by the following features:

- between the random-number generator (1) and the phase modulator (4), an integrator (3) is inserted for integrating the random numbers (z1, z2) provided by the random-number generator;
- the output of the integrator (3) controls via its integral (pa; j') the respective phase value in the phase modulator (4); and
- the integrator (3) is coupled to a checking facility (7) which interferes in the random numbers (z1, z2) or intervenes in the integration process to prevent predetermined limit values (G1, G1'; G2, G2'; G3, G3') of the integral (pa, j') from being exceeded.

2. A clock generator (100) as set forth in claim 1, characterized in that a first limit value (G1, G1'; cmin) and a start value (psoll; G1, G1'; G2, G2') define a maximum jump (M; M'; M*) of the integral (pa; j') which corresponds to a maximum permissible phase shift of the system clock (cl).

3. A clock generator (100) as set forth in claim 1, characterized in that a second limit value (G2, G2') defines a first maximum permissible phase deviation of the system clock (cl) at least during predetermined first time intervals.

4. A clock generator (100) as set forth in claim 3, characterized in that the random-number generator (1) produces random numbers (z1, z2) which lie within a predetermined range of values, particularly within a range defined by the first limit values (G1, G1').

5. A clock generator (100) as set forth in claim 4, characterized in that during second time intervals, which preferably lie outside the first time intervals, a third limit value (G3, G3') defines a second maximum permissible phase deviation of the system clock (cl), the third limit value being at least equal in magnitude to the second limit value (G2, G2').

6. A clock generator (100) as set forth in claim 5, characterized in that the checking facility (7) comprises a modification device (17; 17.1; 17.2) which modifies the random number (z1, z2) prior to the integration to meet the first, second, or third limit value (G1, G1', G2, G2', G3, G3').

7. A clock generator (100) as set forth in claim 6, characterized in that the modification device (17) includes a subcircuit (17.2) which implements a return strategy assigned to the third limit value (G3, G3') to ensure that the integral (pa; j') reaches the second limit value (G2, G2') again at the beginning of the first time intervals at the latest.

8. A clock generator (100) as set forth in claim 7, characterized in that from a first phase location range (A1), defined by the second limit values (G2, G2'), an extended phase location range, the second phase location range (A2), is formed by appending at the upper and/or lower range limits (G2, G2') an additional range, particularly a range equal in size to the maximum jump (M).

9. A clock generator (100) as set forth in claim 8, characterized in that at least part of the arithmetic operations in the checking facility (7) and the integrator (3) are performed by means of parallel-connected arithmetic units (60, 70), and that a selection unit (80) connects one of said arithmetic units to an output for the delivery of a new integral (pa; j').

10. A method of producing a modified random number (z3; k) which is fed instead of a random number (z1, z2) to an integrator (3) in a clock generator (100) according to claim 1, comprising a first step in which it is determined that a permissible range (A0, A1, A2) is exceeded with the random number (z1, z2) during the integration, and a subsequent second step, in which:

- the random number to be integrated (z1, z2) is replaced by a predetermined number, particularly a number corresponding to a predetermined maximum jump (M), or
- the random number to be integrated (z1, z2) is replaced by a predetermined number sequence, or
- the excess value (ps10', ps7') of the random number to be integrated (z1, z2) is mirrored at an associated range limit (G1, G1', G2, G2', G3, G3'), or
- the random number to be integrated (z1, z2) is replaced by a number of the same magnitude with changed sign, or
- if a third range limit (G3, G3') is exceeded, the random number to be integrated (z1, z2) is replaced by a predetermined number with appropriate sign, particularly by a number corresponding to the maximum permissible jump (M), which permits a return to second range limits (G2, G2') at the beginning of a first time interval at the latest, or

- the random number to be integrated (z1, z2) or a sequence of the last random numbers is replaced by a repetition of the random number or of the sequence of the last random numbers with at least one changed sign, with the order during the repetition being arbitrary, or
- the random number to be integrated (z1, z2) is suppressed and new random numbers are used until a suitable random number appears with which the respective range limits are met.